

MARS COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT PROGRAM (Continued)

b Abatement Project Reports

13 Technical Assistance

Assistance and technical publications may be obtained from the EPA through their Regional Office Federal Facility Coordinator. Also, refer to various EPA guidance documents, such as "EPA Preliminary Assessment Guidance" and "EPA Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA".

NARS TANK MANAGEMENT PROGRAM

1 Purpose

a This Section contains policy, standards, information, and other requirements for:

(1) Installation of new underground storage tanks (UST's).

(2) Requirements for new USTs and piping.

(3) Requirements for existing USTs and piping.

(4) Types of leak detection methods.

(5) Corrosion protection methods.

(6) Spill/overfill prevention methods.

(7) Requirements for UST notification.

(8) Requirements for reporting leaks.

(9) Requirements for closing a UST.

(10) Reporting and recordkeeping requirements.

(11) Management of chemical USTs.

(12) Special requirements for aboveground tanks.

(13) Requirements of spill containment for aboveground tanks.

(14) The requirements for Spill Prevention Control and Countermeasure (SPCC) Plans.

N ARS TANK MANAGEMENT PROGRAM (Continued)

(15) Exhibits which include:

(a) Inventory Form with instructions

(b) List of State UST program offices

(c) Notification Form for USTs

(d) Organizations to contact for storage tank information

(e) Sample SPCC Plan

2 Applicability

The contents of this section are applicable to all missions under the direction of the ARS Administrator whether accomplished by ARS personnel, cooperators, or contractors within ARS. Exceptions to the provisions of this MANUAL require Office of the Administrator approval. Waivers must be

documented and copies furnished to the next higher management level. In all instances, however, program coverage consistent with the intent of the pertinent provision will be provided.

3 References

a 40 CFR Part 280, Federal Underground Storage Tanks

b 40 CFR Part 112, Oil Pollution Prevention

c Various State Environmental Regulations

d 29 CFR 1910.120 - Hazardous Waste Operations and Emergency Response

e 29 CFR 1910.106 - Flammable and Combustible Liquids

f National Fire Protection Association Codes (NFPA 30 Flammable and Combustible Liquids)

g National Fire Protection Association Code 30A (Automatic and Marine Service Station)

h Uniform Fire Code (UFC Article 79, Flammable and Combustible Liquids)

i Oil Pollution Act of 1990

N ARS TANK MANAGEMENT PROGRAM (Continued)

j 29 CFR 1926 - Safety and Health Regulations for Construction

4 Forms

a ARS Inventory Form for Storage Tanks

5 Definitions

a Underground storage tank or "UST". Any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground piping connected thereto) is ten percent or more below the surface of the ground. This term does not include any:

(1) Farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;

(2) Tank used for storing heating oil for consumptive use on the premises where stored;

(3) Septic tank;

(4) Pipeline facility;

(5) Surface impoundment, pit, pond, or lagoon;

(6) Storm-water or wastewater collection system;

(7) Flow-through process tank;

(8) Liquid trap or associated gathering lines directly associated with oil or gas productions and gathering operations; or

(9) Storage tank situated in an underground area (such as a basement, cellar, mineworking, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

N ARS TANK MANAGEMENT PROGRAM (Continued)

b Regulated substance:

(1) Any substance defined in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (but not including any substance regulated as a hazardous waste under subtitle C), and;

(2) Petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

c Hazardous substance UST system:

Any underground storage tank system that contains a hazardous substance defined in section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (but not including any substance regulated as a hazardous waste under subtitle C) or any mixture of such substances and petroleum, and which is not a petroleum UST system.

d Petroleum UST system:

An underground storage tank system that contains petroleum or a mixture of petroleum with de minimis quantities of other regulated substances. This includes systems containing motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

e Leak detection for tanks:

The process by which a tank is checked at least once a month to see if it is leaking. These monthly monitoring methods include:

(1) Automatic tank gauging;

(2) Monitoring for vapors in the soil;

(3) Interstitial monitoring;

(4) Monitoring for liquids on the ground water;

N ARS TANK MANAGEMENT PROGRAM (Continued)

(5) And a combination of inventory control and tank tightness testing every 5 years (may only be used for the first ten years after the UST is installed and the UST must have corrosion protection as well as spill and overfill prevention. Without these safeguards the tank must be tightness tested every year and this method can only be used until 1998).

f Leak detection for piping:

If the tank has pressurized piping two things need to be done:

(1) Install an automatic line leak detector and;

(2) Either conduct an annual line tightness test or conduct monthly monitoring using an approved method for tanks such as: vapor monitoring, ground water monitoring, interstitial monitoring or other approved methods.

If the tank has suction piping, you need to do one of two things:

(1) Either conduct tightness testing every three years or;

(2) Conduct monthly leak detection as described above for pressurized piping. Leak Detection is not required for suction piping if there is a check valve directly below the pump or the piping is sloped so that the piping contents will drain back into the tank.

g Corrosion resistant coating:

A coating used to protect steel tanks and piping from corrosion.

h Cathodic Protection:

A technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. A tank can be cathodically protected through the application of either galvanic anodes or impressed current.

N ARS TANK MANAGEMENT PROGRAM (Continued)

i Corrosion Expert:

A person accredited or certified as being qualified by the National Association of Corrosion Engineers or a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks.

j Spill Prevention:

The prevention of spills through the use of devices such as spill catchment basins or dry disconnect couplings.

k Overfill Prevention:

The use of a device which will shut off the flow to the tank when the tank is no more than 95 percent full; or alert the transfer operator when the tank is no more than 90 percent full by restricting the flow or triggering a high level alarm.

l New Underground Storage Tanks (UST) System:

A tank system is considered new if it was installed after December 22, 1988.

m Spill Prevention Control and Countermeasure Plan (SPCC):

A carefully thought-out plan to prevent the discharge of oil from non-transportation-related onshore and off shore facilities into or upon the navigable waters of the United States or its adjoining shorelines.

n Navigable Waters:

Means all tidal waters, lakes, rivers and streams which are utilized for recreational or other travel and their tributaries.

o Free Product:

Refers to a regulated substance that is present as a non-aqueous phase liquid (e.g., liquid not dissolved in water).

N ARS TANK MANAGEMENT PROGRAM (Continued)

p Above ground Storage Tank (AST):

Any storage tank which does not fit the definition of an underground storage tank.

6 Policy

ARS policy is to protect ground water, surface water, soil and people by:

a Implementing the Agency's program for storage tank management.

b Complying with the spirit and the letter of all applicable Federal, State, and local legislation, orders, rules and regulations.

c Establishing procedures to remove, upgrade, or replace storage tanks which are in noncompliance.

d Providing supervisory/employee education/training opportunities and materials for communicating program function requirements.

e Developing Spill Prevention Control and Countermeasure Plans (SPCC) when required.

f Developing procedures for reporting the status and progress of the program.

g Developing procedures for funding the removal, remediation, upgrading or replacement of regulated storage tanks.

h Developing procedures for reviewing, inspecting/auditing, and complying with the program.

7 Responsibilities

a AD's, under the Direction of the Administrator, will:

(1) Initiate and operate a comprehensive and viable Storage Tank Management Program consistent with the requirements set forth in applicable legislative/executive mandates and the requirements of this Section.

N ARS TANK MANAGEMENT PROGRAM (Continued)

(2) Provide the necessary qualified subordinate staffing, education/training, equipment, financial resources, and management support to develop and manage a comprehensive and viable program.

(3) Inform and hold subordinate supervisors accountable for implementation and monitoring the program requirements as established in this Section.

b CD's, LC's, and RL's will :

(1) Implement/manage/monitor and comply with guidance as provided in this Section and as required by 40 CFR 280, 29 CFR 1910.120, and Various State Environmental Regulations.

(2) Inform and hold subordinate supervisors responsible for implementing and managing this program. Procedures as provided in this Section are the responsibility of this level of supervision.

(3) Comply with responsibilities as found in the Section on overall responsibilities.

(4) Maintain an inventory/listing of the location of all storage tanks, their contents, and test results if applicable.

c FD-SHEMB, will:

(1) Develop and update as required guidance on the interpretation and application of 40 CFR 280, 29 CFR 1910.120 for use by ARS supervisors and employees.

(2) Assure all supervisory personnel and employees know of their responsibilities and rights as provided in 40 CFR Part 280, 29 CFR 1910.120.

(3) Provide assistance in the implementation of this program as requested.

N ARS TANK MANAGEMENT PROGRAM (Continued)

d AAO's, will:

(1) Assist line manager in identifying and allocating necessary qualified subordinate staffing, education/training, and financial resources, to develop and manage a comprehensive and viable Storage Tank Management Program.

(2) Provide administrative management assistance to the AD in establishing Area Program.

(3) Recommend actions that enable the AD to comply with the intent, purpose, and standards of this Section.

e ASHM's, will:

(1) Coordinate and provide technical oversight to the implementation of this Section for all Area employees, cooperators, and visitors.

(2) Ensure that all Location programs within the Area are consistent with this Section.

(3) Establish specific procedures and operating criteria in conformance with this DIRECTIVE and MANUAL, to implement, manage, and evaluate the Program in their Area.

(4) Provide technical advice and guidance to Location and Area office personnel on the implementation and operation of the Program.

(5) Review and evaluate program implementation and operation at the Locations in their Area during the annual inspection.

(6) Maintain recordkeeping and reporting procedures consistent with ARS policy.

(7) Contact FD-SHPS to obtain guidance and/or notify them if there is a spill, discharge, or other unplanned release into the environment.

(8) Serve as the central location for Area's records on storage tanks.

N ARS TANK MANAGEMENT PROGRAM (Continued)

(9) Collect the inventory data and enter it on a computer program.

(10) Update the inventory record yearly.

(11) Prepare reports to headquarters on the success and progress of the program.

f Area Real Property Management Officer, will:

(1) Identify and provide information on the number, size, and location of storage tanks currently on the Real Property Management Information System (RPMIS).

(2) Provide support for the program by ensuring entry of appropriate data into the RPMIS.

(3) Report problems with RPMIS implementation to higher ARS authorities.

(4) Include storage tanks in utilization surveys, verifying data elements in the RPMIS.

g ARS Supervisors will:

Notify CD's, LC's, and RL's of spills, discharges, or other unplanned releases into the environment.

h CEPS' and OMB Circular A-76 Contractors Providing Safety, Health, and Environmental Support will:

(1) Assist manager/supervisor in the development and implementation of the Program for the Location.

(2) Assist in identifying presence of and location of storage tanks.

i CDSO's will:

Review and evaluate the implementation and operation of the Location's Storage Tank Management Program.

j ARS employees will:

(1) Comply with all provisions of this Section.

N ARS TANK MANAGEMENT PROGRAM (Continued)

(2) Maintain the integrity of storage tanks and report spills, discharges, or other unplanned releases into the environment to their supervisor.

8 Guidelines

Precautionary Note - The guidance presented in this Section is for compliance with Federal regulations. State and local authorities may have more stringent requirements. Compliance with the more stringent Federal, State, or local regulations is required.

There are details of the State or local regulations that may be more stringent. For the underground storage tanks the most common difference is that many States do not exclude tanks used for heating oil. Other differences may be requirements for a specific type of leak detection, such as a double walled tank with interstitial monitoring wells in addition to another type of leak detection.

The regulations pertaining to above ground storage tanks (ASTs) vary even greater than the UST regulations. This is because Federal AST regulations are relatively weak and many States and localities have used the National Fire Protection Association Codes (NFPA 30) and the Uniform Fire Code (UFC Article 79) to produce their own regulations which may be unique to their county or even township. This situation may change somewhat with new Federal AST regulations expected to take effect in FY 93.

At the end of this Section is a list of UST State offices. They should be contacted for information regarding State and local UST regulations. The best source of information about local AST regulations would be the local or county fire warden. Typically it is that office which is the regulatory authority for AST compliance. An additional source would be your State Environmental Department and the regional Environmental Protection Agency office.

The importance of investigating State and local regulations cannot be stressed enough.

a Federal Underground Storage Tank Regulations (40 CFR Part 280)

(1) Applicability (40 CFR 280.10)

N ARS TANK MANAGEMENT PROGRAM (Continued)

(a) The following UST systems are excluded from the Federal UST regulations:

1) Any UST system holding hazardous wastes listed or identified under Subtitle C of the Solid Waste Disposal Act, or a mixture of such hazardous waste and other regulated substances;

2) Any wastewater treatment tank system that is part of a wastewater treatment facility regulated under Section 402 or 307(b) of the Clean Water Act;

3) Equipment or machinery that contains regulated substances for operational purposes such as hydraulic lift tanks and electrical equipment tanks.

To qualify for this exemption, a tank must meet two major criteria: (1) The equipment or machinery

contains small amounts of regulated substances solely for operational purposes; and, (2) a loss of regulated substance is accompanied by faulty operation of the equipment or machinery, such that a loss of fluid causes knowledge of the loss;

4) Any UST system whose capacity is 110 gallons or less;

5) Any UST system that contains a de minimis concentration of regulated substance.

EPA has not included a specific percentage threshold as the de minimis cutoff because of the many difficulties with measuring tank contents for low concentrations. Instead, on a case-by-case basis, the implementing agencies will determine if tanks that hold

N ARS TANK MANAGEMENT PROGRAM (Continued)

very low concentrations of regulated substances are excluded via the de minimis concentration rationale;

6) Any emergency spill or overflow containment UST system that is expeditiously emptied after use.

The purpose of this exemption is to allow an immediate response to an emergency situation. Sumps designed to store petroleum or hazardous substances during periodic cleaning or maintenance of machinery or equipment are not included.

(b) Deferrals

1) Subparts B, C, D, E, and G of the UST regulations (40 CFR 280) do not apply to the following tanks:

a) Wastewater treatment tank systems;

b) Any UST system containing radioactive materials that are regulated under the Atomic Energy Act of 1954 (42 U.S.C. 2011 and following);

c) Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR Part 50, Appendix A;

d) Airport hydrant fuel distribution systems; and

e) UST systems with field-constructed tanks.

NARS TANK MANAGEMENT PROGRAM (Continued)

2) Subpart D (release detection) of 40 CFR 280 does not apply to any UST system that stores fuel solely for use by emergency power generators.

3) No person may install an UST system listed in the above deferral list for the purpose of storing regulated substances unless the UST system (whether of single or double-wall construction) (40 CFR 280.11):

a) Will prevent releases due to corrosion or structural failure for the operational life of the UST system;

b) Is protected against corrosion;

c) Is constructed or lined with a material that is compatible with the stored substance.

(2) What is required for new tanks?

(a) Leak detection (2 choices)

1) Monthly monitoring

a) Automatic Tank Gauging (40 CFR 280.43(d))

b) Vapor Monitoring (40 CFR 280.43(e))

c) Interstitial Monitoring (40 CFR 280.43(g))

d) Ground Water Monitoring (40 CFR 280.43(f))

e) Other Approved Methods (40 CFR 280.43(h))

N ARS TANK MANAGEMENT PROGRAM (Continued)

(b) Monthly inventory control and tank tightness testing every 5 years (you can only use this choice for 10 years after installation) (40 CFR 280.43(a) and (c)).

1) Corrosion protection (3 choices) (40 CFR 280.20)

a) Coated and cathodically protected steel

b) Fiberglass

c) Steel tank clad with fiberglass

2) Spill/overfill prevention (40 CFR 280.30)

a) Catchment basins; and

b) automatic shutoff devices or overfill alarms or ball float valves.

(3) What is required for existing tanks?

(a) Leak detection (3 choices)

1) Monthly monitoring

a) Automatic tank gauging (40 CFR 280.43(d))

b) Vapor monitoring (40 CFR 280.43(e))

c) Interstitial monitoring (40 CFR 280.43(f))

d) Ground Water monitoring (40 CFR 280.43(g))

e) Other approved methods (40 CFR 280.43(h))

2) Monthly inventory control and tank tightness testing every year. (This choice can only be used until December 1998.) (40 CFR 280.43(a) and (c).)

N ARS TANK MANAGEMENT PROGRAM (Continued)

3) Monthly inventory control and tank tightness testing every 5 years. (This choice can only be used for 10 years after adding corrosion protection and spill/overflow prevention or until December 1998, whichever is later.) (40 CFR 280.43(a) and (c).)

(b) Corrosion protection (40 CFR 280.31) (4 choices)

1) Same options as for new tanks

2) Add cathodic protection system

3) Interior lining

4) Interior lining and cathodic protection

(c) Spill/overflow prevention (40 CFR 280.30)

1) Same options as for new tanks

(4) What is required for new and existing pressurized piping?

(a) Leak detection (choice of one) (40 CFR 280.41(b)(1))

1) Automatic flow restriction

2) Automatic shutoff device

3) Continuous alarm system

4) Annual line testing

5) Monthly monitoring (same methods as for tanks except automatic tank gauging).

(b) Corrosion protection (40 CFR 280.20(b))

1) New piping (2 choices)

a) Coated and cathodically protected steel

N ARS TANK MANAGEMENT PROGRAM (Continued)

b) Fiberglass

2) Existing piping (2 choices)

a) Same options as for new piping

b) Cathodically protected steel

(5) What is required for new and existing suction piping?

(a) Leak detection (3 choices) (40 CFR 280.41(b)(2))

1) Monthly monitoring (same methods as for tanks except automatic tank gauging).

2) Line testing every 3 years.

3) No requirements if piping has both these characteristics:

a) Below grade piping is sloped so that the piping's contents will drain back into the tank if suction is released; and

b) Only one check valve is included in each suction line and is located directly below the suction pump.

(b) Corrosion protection (40 CFR 280.20(b))

1) Same options as for pressurized piping.

(6) When do you have to act?

(a) The requirements for leak detection, corrosion protection and spill/overfill prevention are based on the age of the tank. For new tanks and piping (those installed after December 1988) all three

N ARS TANK MANAGEMENT PROGRAM (Continued)

protection measures are required at the time of installation.

(b) For existing tanks (those installed before December 1988) the requirements must meet the following deadlines:

1) Leak detection (40 CFR 280.40)

For tanks

installed: No later than:

Before 1965

or unknown December 1989

1965 - 1969 December 1990

1970 - 1974 December 1991

1975 - 1979 December 1992

1980 -

December 1988 December 1993

2) Corrosion protection (40 CFR 280.21)

All existing tanks must meet the requirements for corrosion protection by December 1998.

3) Spill/Overfill Prevention (40 CFR 280.21)

All existing tanks must meet the requirements for spill/overfill prevention by December 1998.

2) Corrosion protection - December 1998

3) Spill/overfill prevention - Does not apply

(7) Leak Detection Methods for Tanks

(a) Ground Water monitoring (40 CFR 280.43(f))

1) Operation

a) Ground water monitoring requires the installation of monitoring wells at strategic locations in the ground near the tank and along the piping.

b) Detection devices may be permanently installed in the well for automatic, continuous measurements of leaked product.

c) Detection devices may be operated manually. Manual devices range from a boiler (used to collect a liquid sample for visual inspection) to a device which can be lowered into the well to electronically detect leaded products. Manual devices must be operated at least once a month.

2) Regulatory requirements

a) Ground water monitoring can only be used if the stored product does not easily mix with water.

N ARS TANK MANAGEMENT PROGRAM (Continued)

b) The ground water must not be more than 20 feet below the surface.

c) The soil between the tank and well must be coarse.

d) The wells must be properly designed, sealed, and locked to keep them from becoming contaminated from outside sources.

e) Wells should be placed in or near the UST backfill.

f) Product detection devices must be able to detect one-eighth inch or less of leaked product on top of the ground water.

3) Best applications for ground water monitoring are where:

a) The ground water surface extends beneath the tank;

b) The monitoring wells are installed in the tank backfill;

c) The ground water is between 2 and 10 feet from the surface; and

d) There are no previous releases of a product that would falsely indicate a current release.

4) The proper design and construction of a monitoring well system is crucial to its effectiveness.

Specific State and local construction requirements need to be investigated and identified.

(b) Vapor Monitoring (40 CFR 280.43(e))

1) Operation

N ARS TANK MANAGEMENT PROGRAM (Continued)

a) Vapor monitoring detects "fumes" from leaked product in the soil.

b) Automated vapor monitoring systems continuously gather and analyze vapor samples and respond to a release with visual or audible alarms.

c) Manually operated vapor monitoring systems range from equipment that immediately analyzes a gathered vapor sample, to those which gather a sample for laboratory analysis. They must be used once each month to monitor the site.

d) All vapor monitoring devices should be calibrated annually to ensure that they are properly

responding to vapor.

e) Vapor monitoring requires the installation of monitoring wells within the tank backfill.

f) Normal requirements are one well for each 20-40 feet surrounding the tanks and piping.

2) Regulatory requirements

a) The UST backfill must be of a coarse material such as sand or gravel.

b) The backfill must not contain previous contamination.

c) The substance stored in the UST must vaporize easily.

N ARS TANK MANAGEMENT PROGRAM (Continued)

d) Vapor monitoring cannot be used where high ground water interferes for more than 30 consecutive days.

e) Monitoring wells must be locked and clearly marked.

3) Best applications for vapor monitoring are when:

a) The ground water surface never approaches the level of the tank;

b) The soil is very porous;

c) There is no previous contamination; and

d) The substance stored easily vaporizes. Gasoline is better than diesel or heating fuel. Waste oil will not work at all.

4) A site assessment will determine if vapor monitoring will be an appropriate method of leak detection.

(c) Secondary Containment with Interstitial Monitoring (40 CFR 280.43(g))

1) Operation

a) Secondary containment provides a barrier which holds the leak and directs it toward a monitor.

b) Barriers include:

(i) double walled tanks, in which an outer tank partially or completely surrounds the primary tank;

(ii) leakproof excavation liners that partially or completely surround the tank;

(iii) leakproof liners that closely surround the tank (also known as "jackets"); and

(iv) concrete vaults, with or without a lining.

c) Interstitial monitors are used to check the area between the tank and the barrier for leaks and alert the operator if a leak is suspected.

(i) Some monitors indicate the physical presence of the leaked product;

(ii) Other monitors check for a change in condition that indicates a hole in the tank such as a loss of pressure or a change in the level of water between walls of a double walled tank;

(iii) Monitors can be as simple as a dipstick used at the lowest point of the containment area to see if the product has pooled there;

(iv) Monitors can also be sophisticated automated systems which continuously check for leaks.

N ARS TANK MANAGEMENT PROGRAM (Continued)

2) Regulatory requirements

a) The barrier must be immediately around or beneath the tank.

b) The interstitial monitor must be checked at least once per month.

c) A double walled system must be able to detect a release through the inner wall.

d) Clay and other earthen materials cannot be used as barriers.

e) An excavation liner must:

(i) Direct a leak towards the monitor;

(ii) Not allow the specific product being stored to pass through it faster than 10^{-6} cm/sec;

(iii) Be compatible with the product stored in the tank.

(iv) Not interfere with the UST's cathodic protection;

(v) Not be disabled by moisture;

(vi) Always be above the ground water and the 25 year flood plain; and

(vii) Have clearly marked and locked monitoring wells if they are used.

N ARS TANK MANAGEMENT PROGRAM (Continued)

3) Best applications

a) In areas with high ground water or a lot of rainfall, it may be necessary to select a secondary containment system that completely surrounds the tank to prevent moisture from interfering with the monitor.

b) In areas of high ground water which rapidly fluctuates, and areas of fine soil such as clay, the double walled system is the best choice.

4) Secondary containment with interstitial monitoring is the only leak detection method which can detect leaks before they contaminate the environment. This alone can potentially save tens of thousands of dollars in future environmental assessment and remediation costs.

(d) Automatic Tank Gauging Systems (ATGS) (40 CFR 280.43(d))

1) Operation

- a) The product level and temperature in a tank are measured continuously and automatically analyzed by a computer.

- b) The system has an "inventory mode" which replaces the use of a gauge stick to measure product level and perform inventory control. It records the activities of an in-service tank, including deliveries.

N ARS TANK MANAGEMENT PROGRAM (Continued)

- c) In the "test mode," the tank is taken out of service and the product level and temperature are measured for at least one hour.

- d) The ATGS probe is permanently installed through a pipe (not the fill pipe) on the top of the tank. Each tank at a site must be equipped with a separate probe.

- e) The ATGS probe is connected to a monitor that displays ongoing product level and the results of the

monthly test. Printers can be connected to the monitor to record this information.

f) For most ATGS, up to 8 tanks can be connected to a single monitor.

g) Most ATGS are equipped with alarms for high and low product level, high water level, and theft.

h) No product shall be delivered to the tank or withdrawn from it for at least 6 hours before the monthly test (which generally takes 1 to 6 hours).

2) Regulatory requirements

a) The ATGS must be capable of detecting a leak at least as small as 0.2 gallons per hour.

b) Performance of ATGS must meet or exceed standards of a 95 percent probability of leak detection and a 5 percent probability of a false alarm.

c) The "test mode" must be activated and conducted at least once per month.

3) Best applications

a) ATGS are best for tanks containing gasoline or diesel and under 15,000 gallons; and

b) Sites with a low water table and non-porous soil.

(e) Tank Tightness Testing and Inventory Control (40 CFR 280.43(a) and (c))

These two leak detection methods must be used together, because neither method alone meets the Federal required leak detection for USTs.

Tank Tightness Testing (40 CFR 280.43(c))

1) Operation

a) There are many methods of tank tightness testing. Most measure the level or volume of the product. Some use acoustics to determine the physical presence of a hole in the tank.

b) Volumetric methods precisely measure the change in product volume over several hours (in millimeters or thousandths of an inch).

N ARS TANK MANAGEMENT PROGRAM (Continued)

c) Most methods also require that changes in product temperature be measured very precisely (thousandths of a degree).

d) For most methods, a net decrease in product volume (subtracting out temperature induced volume changes) over the test period indicates a leak.

- e) The testing equipment is temporarily installed in the tank, usually through the fill pipe.
- f) The tank must be taken out of service for the test, generally 6 to 12 hours, depending on the method.
- g) Many test methods require that the product in the tank be at a certain level before testing, which often requires adding product from another tank or purchasing additional product.
- h) Tank tightness testing has been used primarily on tanks less than 15,000 gallons in capacity containing gasoline and diesel.

2) Regulatory requirements

- a) The tightness test must be able to detect a leak at least as small as 0.1 gallon per hour.
- b) Performance of tightness tests must meet or exceed standards of a 95 percent probability of leak detection and a 5 percent probability of a false alarm.

N ARS TANK MANAGEMENT PROGRAM (Continued)

- c) New tanks must be tightness tested every 5 years for 10 years following installation.

- d) Existing tanks with corrosion protection and spill/overfill prevention must be tightness tested every 5 years for 10 years following the date it was upgraded, or until December 1998, whichever date is later.

- e) Existing tanks without corrosion protection and spill/overfill prevention must be tightness tested every year until 1998.

- f) After the time periods listed above, you must have a monthly monitoring method that can be performed at least once per month.

- g) In some States and localities, testers are required to be certified.

- h) Tank tightness tests must be used in conjunction with inventory control.

3) Best applications

a) Because tightness testing may be used for only a certain period of time, it is not a long term solution for meeting leak detection requirements. It is best employed to fulfill present requirements of a tank scheduled for replacement.

(f) Inventory Control (40 CFR 280.43(a))

1) Operation

N ARS TANK MANAGEMENT PROGRAM (Continued)

a) Every month the product volume is balanced between what is delivered and what is removed from the tank. Daily measurements of tank volume are taken with a gauge stick. The level on the gauge stick can be translated to a volume of product using a calibration chart.

b) If after monthly reconciliation the overage or shortage is greater than or equal to 1.0 percent of the tank's flow-through volume plus 130 gallons of product, the UST may be leaking.

c) If the tank is not level, you will need to create your own tank calibration chart by adding increments of product and reading the corresponding level.

d) The amount of product delivered to and withdrawn from the UST each day are also recorded.

e) Gauge accuracy can be significantly improved by the use of product finding paste.

2) Regulatory requirements

a) The gauge stick should be long enough to reach the bottom of the tank and marked so that the product level can be determined to the nearest one-eighth of an inch.

b) A monthly measurement must be taken to identify any water at the tank bottom.

c) Deliveries must be made through a drop tube that extends to within one foot of the tank bottom.

d) Product dispensers must be calibrated to the local weights and measures standard.

e) Inventory control must be used in conjunction with periodic tank tightness tests.

3) Best applications

a) Just as for tank tightness testing, inventory control may only be used for a limited period of time. It is not a long term solution for meeting leak detection requirements. It is labor intensive, and best employed to fulfill the present requirements of a tank scheduled for replacement.

(g) Manual Tank Gauging (40 CFR 280.43(b))

This method can only be used for smaller tanks. Tanks over 2,000 gallons cannot use this method.

This method should not be confused with inventory control which was described in the previous section of this Section.

1) Operation

a) Four liquid level measurements must be taken weekly, two at the beginning and two at the end of at least a 36 hour period during which nothing is added to or removed from the tank.

N ARS TANK MANAGEMENT PROGRAM (Continued)

b) The average of the two consecutive end measurements are subtracted from the average of the two beginning measurements to indicate the change in product volume.

c) Every week the calculated change in tank volume is compared to the standard shown in 40 CFR 280.43(b)(4). If the calculated change exceeds the weekly standard, the UST may be leaking. Also, monthly averages of the four weekly test results must be compared to the monthly standard in the same way.

2) Regulatory requirements

- a) Liquid level measurements must be taken with a gauge stick that is marked to measure the liquid to the nearest one-eighth of an inch.

- b) Manual tank gauging may be used as the sole method of leak detection for tanks with a capacity of 1,000 gallons or less for the life of the tank.

- c) For tanks with a capacity of 1,000 to 2,000 gallons, manual tank gauging must be combined with tightness testing according to the same schedule as for tank tightness testing when it is combined with inventory control. It also has the same time limitation and can only be used temporarily.

N ARS TANK MANAGEMENT PROGRAM (Continued)

3) Best application

a) Manual Tank Gauging has limited applications. It can only be used on small tanks which can be shut down weekly for at least 36 hours.

(7) Leak Detection Methods for Underground Suction Piping (40 CFR 280.41(b)(2))

(a) Line tightness testing

1) Operation

a) The line is taken out of service and pressurized. A drop in pressure over time, preferably one hour or more, suggests a possible leak.

b) Pressure of less than 15 psi are used.

c) Some tank tightness test methods can be performed to include a tightness test of the connected piping.

2) Regulatory requirements

a) Tightness tests must be conducted at least every 3 years.

b) The line must be taken out of service for the test, ideally for several hours to allow the line to stabilize before the test.

c) In the event of trapped vapor pockets, it may not be possible to conduct a valid test.

(b) Ground water or vapor monitoring

1) Operations

N ARS TANK MANAGEMENT PROGRAM (Continued)

a) Refer to ground water and vapor monitoring section for tanks.

b) A monitoring well should be installed every 20 to 40 feet.

c) UST systems using ground water or vapor monitoring for tanks are usually well suited to use the same monitoring method for piping.

(c) Secondary containment with interstitial monitoring.

1) Operation

a) Refer to the section on secondary containment for tanks.

(8) Leak Detection Methods for Pressurized Underground Piping (40 CFR 280.41(b)(1))

(a) Automatic line leak detectors (3 types)

1) Automatic flow restrictors

a) Operation

(i) If a leak is detected a permanently installed flow restrictor keeps the product flow through the line at 3 gallons per hour.

2) Automatic flow shutoff

a) Operation

N ARS TANK MANAGEMENT PROGRAM (Continued)

(i) If a leak is detected, a permanently installed flow shutoff will completely cut off the product flow in the line or shuts off the pump.

3) Continuous alarm system

a) Operation

(i) A continuous alarm system constantly monitors line conditions and immediately triggers an audible or visual alarm if a leak is suspected.

(b) Vapor and interstitial monitoring systems can be combined with automatic shutoff systems so that whenever the monitor detects a possible release the piping system shuts down. This would qualify for a continuous alarm system. Such a system would meet the monthly monitoring requirement as well as the automatic line leak detector requirement.

(c) Monthly monitoring (3 types)

1) Operation

a) Monthly ground water monitoring, vapor monitoring, and interstitial monitoring have the same operational and regulatory requirements for piping as they do for tanks.

(d) Annual tightness tests

1) Operation

N ARS TANK MANAGEMENT PROGRAM (Continued)

a) The line is taken out of service and pressurized, usually above the normal operating pressure. A drop in pressure over time, preferably one hour or more, suggests a possible leak.

b) Some tank tightness test methods can be performed to include a tightness test of the connected piping.

2) Regulatory requirements

a) The line tightness test must be able to detect a leak as small as 0.1 gallons per hour when the line is at one and one-half times its normal pressure.

b) The test must be performed annually.

c) The line must be out of service for the test, ideally for several hours to allow the line to stabilize before the test.

d) In the event of trapped vapor pockets, it may not be possible to conduct a valid test.

(9) Corrosion Protection Standards For New Tanks and Piping (3 choices) (40 CFR 280.20)

(a) Fiberglass reinforced plastic

(b) Cathodically protected steel in the following manner:

1) The tank is coated with a suitable dielectric material;

N ARS TANK MANAGEMENT PROGRAM (Continued)

2) The field-installed cathodic protection system is designed by a corrosion expert;

3) Systems using impressed current must be designed to allow determination of the current operating status as required in 40 CFR 280.31(c); and

4) Cathodic protection systems are operated and maintained in accordance with 40 CFR 280.31 (as described later in this Section).

(c) The tank is constructed of a steel-fiberglass-reinforced plastic composite.

(10) Corrosion Protection Standards For Existing Tanks (40 CFR 280.21)

(a) Interior lining

1) Must be installed in accordance with the requirements of 40 CFR 280.33.

2) Within 10 years the lined tanks must be internally inspected and found to be structurally sound. It must be reinspected every 5 years thereafter.

(b) Cathodic protection

1) Must be designed by a corrosion expert.

2) Impressed current systems must be designed to allow determination of current operating status as required in 40 CFR 280.31(c).

3) Cathodic protection systems are operated and maintained in accordance with 40 CFR 280.31 (as described later in this Section).

N ARS TANK MANAGEMENT PROGRAM (Continued)

4) The integrity of the tank must be ensured using one of the following methods:

a) The tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion holes prior to installing the cathodic protection system; or

b) The tank has been installed for less than 10 years and is monitored monthly for releases in accordance with 40 CFR 280.43(d) through (h); or

c) The tank has been installed for less than 10 years and is assessed for corrosion holes by conducting two tightness tests that meet the requirements of 40 CFR

280.43(c). The first tightness test must be before installing the cathodic protection system. The second test must be conducted between 3 and 6 months after installation.

(c) Internal lining combined with cathodic protection

1) The lining must be installed in accordance with the requirements of 40 CFR 280.33.

2) The cathodic protection system must meet the following requirements:

a) It must be designed by a corrosion expert;

N ARS TANK MANAGEMENT PROGRAM (Continued)

b) Impressed current systems must be designed to allow determination of current operating status as required in 40 CFR

280.31(c); and

c) The system must be operated and maintained in accordance with 40 CFR

280.31 (as described later in this Section).

(11) Corrosion Protection Standards for Existing Piping (40 CFR 280.21(c))

(a) Metal piping that routinely contains regulated substances and is in contact with the ground must be cathodically protected and meet the following requirements:

1) The system must be designed by a corrosion expert;

2) Impressed current systems must be designed to allow determination of current operating status as required in 40 CFR 280.31(c).

3) Cathodic protection systems are operated and maintained in accordance with 40 CFR 280.31 (as described next in this Section).

(12) Operation and Maintenance of the Corrosion Protection System (40 CFR 280.31)

(a) All corrosion protection systems must be operated and maintained to continuously provide

corrosion protection to the metal components of the tank and piping that are routinely in contact with the ground.

N ARS TANK MANAGEMENT PROGRAM (Continued)

(b) All UST systems equipped with cathodic protection systems must be inspected for proper operation by a qualified cathodic protection tester in accordance with the following requirements:

1) All cathodic protection systems must be tested within 6 months of installation and at least every 3 years thereafter; and

2) UST systems with impressed current cathodic protection systems must also be inspected every 60 days to ensure the equipment is running properly.

(c) Records of the operation of the cathodic protection system must be maintained (in accordance with 40 CFR 280.34) to demonstrate compliance with the performance standards required of the corrosion

protection system. They must include the following:

- 1) The results of the last three inspections, and

- 2) The results of testing from the last two inspections.

(13) Performance Standards for Spill and Overfill Prevention Equipment (40 CFR 280.20(c))

- (a) Spill prevention equipment must prevent release of product to the environment when the transfer hose is detached from the fill pipe (for example, a spill catchment basin).

- (b) Overfill prevention equipment that will:

- 1) Automatically shut off flow into the tank when the tank is no more than 95 percent full; or

N ARS TANK MANAGEMENT PROGRAM (Continued)

2) Alert the transfer operator when the tank is no more than 90 percent full by restricting the flow or triggering a high level alarm; or

3) Restrict flow 30 minutes prior to overfilling, alert the operator with a high level alarm one minute before overfilling, or automatically shut off flow into the tank so that more of the fittings located on top of the tank are exposed to the product due to overfilling.

(14) Compatibility (40 CFR 280.32)

(a) Owners and operators must use a UST system made of or lined with materials that are compatible with the substance stored in the UST system.

(15) Repairs

(a) Owners and operators of UST systems must ensure that repairs will prevent releases due to structural failure or corrosion as long as the UST system is to store regulated substances. All repairs must meet the requirements set forth in 40 CFR 280.33.

(16) Requirements for Hazardous Substance UST Systems (40 CFR 280.42)

(a) New hazardous substance UST systems must meet the same requirements for tanks and piping listed earlier in this Section and in addition:

1) The tank and piping must have secondary containment with interstitial monitoring.

2) There are several ways to accomplish this:

a) Using a double walled tank and piping;

N ARS TANK MANAGEMENT PROGRAM (Continued)

b) Placing the UST system inside a concrete vault; and

c) Lining the excavation zone around the UST with a liner that cannot be penetrated by the chemical.

(b) Existing hazardous substance UST systems must meet the same requirements for tanks and piping listed earlier in this Section and the special requirements for new hazardous substance UST systems listed above with one key difference:

1) The method of leak detection may be one of those mentioned in this Section other than interstitial monitoring provided it can effectively detect releases of the hazardous substance stored in the UST; and

2) This alternate leak detection method must be replaced with secondary containment and interstitial monitoring after December 1998.

(17) Installation of Tanks and Piping (40 CFR 280.20(d))

(a) All tanks and piping must be properly installed and in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory in accordance with the manufacturers instructions.

(b) All owners and operators must ensure that one or more of the following methods of certification, testing, or inspection is used to demonstrate proper installation.

N ARS TANK MANAGEMENT PROGRAM (Continued)

- 1) The installer has been certified by the tank and piping manufacturers; or
- 2) The installer has been certified or licensed by the implementing agency; or
- 3) The installation has been inspected and certified by a registered professional engineer with education and experience in UST system installation; or
- 4) The installation has been inspected and approved by the implementing agency; or
- 5) All work listed in the manufacturer's installation checklists has been completed; or

6) The owner and operator have complied with another method of ensuring proper installation which is approved by the implementing agency.

(18) Notification Requirements (40 CFR 280.22)

(a) Any owner who brings an UST system into use after May 8, 1986, must within 30 days of bringing such tank into use, submit, in the form prescribed in Exhibit 3, or similar State form, a notice of existence of the tank system to the State or local agency or department designated in Exhibit 2.

(b) All owners and operators of new UST systems must certify in the notification form compliance with the following requirements:

1) Installation of tanks and piping under 40 CFR 280.20(e);

2) Cathodic protection of steel tanks and piping under 40 CFR 280.20(a) and (b);

N ARS TANK MANAGEMENT PROGRAM (Continued)

3) Release detection under 40 CFR 280.41 and 280.42.

4) All owners and operators of new UST systems must ensure that the installer certifies in the notification form that the methods used to install the tanks and piping complies with the requirements in 40 CFR 280.20(d).

(c) Some States collect an annual fee from tank owners. The Federal government is not exempt from these fees.

(19) UST Closure

(a) Temporary closure (40 CFR 280.70)

1) When an UST system is temporarily closed, owners and operators must continue operation and maintenance of corrosion protection, and leak detection. Leak detection is not required if the UST is empty (no more than one inch of residue or 0.3 percent by weight of the total capacity of the UST system).

2) If a leak is suspected, you must comply with Subparts E and F of the regulations.

3) When an UST system is temporarily closed for 3 months or more owners and operators must comply with the following requirements:

a) Leave vent lines open and functioning; and

b) Cap and secure all lines, pumps, manways, and ancillary equipment.

N ARS TANK MANAGEMENT PROGRAM (Continued)

4) When an UST system is temporarily closed for more than 12 months, it must be closed permanently if it does not meet the performance standards in 40 CFR 280.20 for new UST systems or the upgrading requirements in 40 CFR 280.21, except that the spill and overfill equipment requirements do not have to be met.

(b) Permanent closure and change-in-service (40 CFR 280.71)

1) At least 30 days before beginning either permanent closure or a change in service, owners and operators must notify the implementing agency of their intent to permanently close or make the change-in-

service unless such action is in response to corrective action.

2) The tank must be emptied, cleaned, and removed from the ground or filled with an inert solid material. Many states do not allow the tank to be left in the ground.

3) Continued use of an UST system to store a nonregulated substance is considered a change-in-service. Before a change-in-service, the tank must be emptied and cleaned.

4) When a permanent closure and change-in-service takes place, a site assessment must be performed in accordance with 40 CFR 280.72.

(c) Applicability to previously closed UST systems

1) When directed by an implementing agency, the owner and operator of an UST system permanently closed before December 22, 1988, must assess the excavation zone and close the UST system in accordance with Subpart G of 40 CFR 280.

(20) Release Reporting, Investigation, and Confirmation (Subpart E of 40 CFR 280).

(a) Reporting suspected releases (40 CFR 280.50)

Owners and operators must report to the implementing agency within 24 hours and follow the procedures in 40 CFR 280.52 for any of the following conditions:

1) The discovery of released regulated substances at the UST site;

2) Unusual operating conditions of product dispensing equipment, the sudden loss of product from the UST system, or an unexplained presence of water in the tank; and

3) Monitoring results from the leak detection method that indicates a leak has occurred unless:

a) The monitoring device is found to be defective and immediately repaired.

b) In the case of inventory control the second month of data does not confirm the initial result.

(b) Investigation due to off-site impacts (40 CFR 280.51)

N ARS TANK MANAGEMENT PROGRAM (Continued)

When required by the implementing agency the owners and operators of a UST system must follow procedures in 40 CFR 280.52 to determine if the UST system is the source of off-site impacts.

(c) Release investigation and confirmation steps (40 CFR 280.52)

Unless corrective action is initiated, owners and operators must immediately investigate and confirm all suspected releases requiring reporting under 40 CFR 280.50 within 7 days using the following steps:

1) System test - Owners and operators must conduct tightness testing to determine if a leak exists in the tank or piping;

a) Owners and operators must repair, replace, or upgrade the UST system if a leak is detected.

b) Further investigation is not required if tightness testing does not indicate a leak unless environmental contamination is the basis for suspecting a leak. In this situation, a site check is required.

2) Site checks - Owners and operators must measure for the presence of a release where contamination is most likely to be present at the UST site.

a) If the test results indicate that a release has occurred, owners and operators must begin corrective action.

b) If the test results do not indicate a release, further investigation is not required.

N ARS TANK MANAGEMENT PROGRAM (Continued)

(d) Reporting and cleanup of spills and overfills (40 CFR 280.53)

1) Owners and operators of UST systems must contain and immediately clean up a spill or overfill and report to the implementing agency within 24 hours in the following cases:

a) Spill or overfill of petroleum that results in a release to the environment that exceeds 25 gallons or that causes a sheen on nearby surface water; and

b) Spill or overfill of a hazardous substance that results in a release to the environment that equals or exceeds its reportable quantity under CERCLA (40 CFR Part 302).

2) Owners and operators must immediately clean up any spill or overfill which does not require reporting. If cleanup cannot be accomplished within 24 hours owners and operators must immediately notify the implementing agency.

(21) Release Response and Corrective Action (Subpart F of 40 CFR 280)

This Subpart does not apply to USTs excluded under 40 CFR 280.10(b) and UST systems subject to RCRA Subtitle C corrective action requirements under Section 3004(u) of the Resource Conservation and Recovery Act as amended.

(a) Initial response (40 CFR 280.61)

1) Report the release to the implementing agency by telephone or electronic mail.

N ARS TANK MANAGEMENT PROGRAM (Continued)

2) Take immediate action to prevent any further release of the regulated substance into the environment.

3) Identify and mitigate fire, explosion, and vapor hazards.

(b) Initial abatement procedures and site check (40 CFR 280.62)

1) Unless directed to do otherwise by the implementing agency, owners and operators must perform the following abatement measures:

a) Remove as much product from the UST system as possible;

b) Visually inspect exposed releases and prevent further migration of the released substance into surrounding soils and ground water;

c) Continue to mitigate any fire and safety hazards posed by vapors or free product;

d) Remedy hazards posed by contaminated soils that are excavated or exposed as a result of release confirmation, site investigation, abatement, or corrective action activities;

e) Measure for the presence of a release where contamination is most likely to be present at the UST site; and

N ARS TANK MANAGEMENT PROGRAM (Continued)

f) Investigate to determine the possible presence of free product, and begin removal as soon as practicable and in accordance with 40 CFR 280.64.

1) Within 20 days after release conformation, a report must be submitted to the implementing agency summarizing the abatement steps and any resulting information or data.

(c) Initial site characterization (40 CFR 280.63)

1) Unless directed to do otherwise by the implementing agency, owners and operators must assemble information about the site and the nature of the release. This information must include, but is not necessarily limited to the following:

a) Data on the nature and estimated quantity of the release;

b) Data on surrounding populations, water quality, use and approximate locations of wells potentially affected by the release, subsurface soil conditions, locations of subsurface sewers, climatological conditions, and land use;

c) Results of the site checks required under 40 CFR

280.62(a)(5); and

N ARS TANK MANAGEMENT PROGRAM (Continued)

d) Results of the free product investigation under 40 CFR 280.62(a)(6), to be used by owners and operators to determine whether free product must be recovered under 40 CFR 280.64.

2) The information collected must be submitted to the implementing agency according to the schedule and format of the implementing agency.

(d) Free product removal (40 CFR 280.64)

At sites where investigations indicate the presence of free product, owners and operators must remove free product to the maximum extent possible. Owners and operators must:

1) Conduct free product removal in a manner that minimizes the spread of contamination into previously uncontaminated zones.

2) Use abatement of free product migration as a minimum objective for the design of the free product removal system;

3) Handle any flammable products in a safe and competent manner to prevent fires or explosions; and

4) Unless directed to do otherwise by the implementing agency, within 45 days after confirming a release, submit a free product removal report that provides at least the following information:

a) The name of the person(s) responsible for implementing the free product removal measures;

N ARS TANK MANAGEMENT PROGRAM (Continued)

b) The estimated quantity, type, and thickness of free product observed or measured in wells, bore holes, and excavations;

c) The type of free product recovery system used;

d) Whether any discharge will take place on-site or off-site during the recovery operation and where this discharge will be located;

e) The type of treatment applied to, and the effluent quality expected from, any discharge;

f) The steps that have been or are being taken to obtain necessary permits for any discharge; and

g) The disposition of the recovered free product.

(e) Investigations for soil and ground water cleanup (40 CFR 280.65)

1) Owners and operators must conduct investigations of the release, the release site, and the surrounding area possibly affected by the release if any of the following conditions exist:

a) There is evidence that ground water wells have been affected by the release;

b) Free product is found to need recovery;

c) There is evidence that contaminated soils may be in contact with ground water; and

N ARS TANK MANAGEMENT PROGRAM (Continued)

d) The implementing agency requests an investigation.

2) Owners and operators must submit this information as soon as practicable or in accordance with a schedule established by the implementing agency.

(f) Corrective action plan (40 CFR 280.66)

1) After reviewing the information submitted to them, the implementing agency may request a corrective action plan. If a plan is required, the owners and operators must submit the plan according to the schedule and format of the implementing agency.

2) The implementing agency will approve the corrective action plan only after ensuring that the plan will adequately protect human health, safety, and the environment.

3) Upon approval of the corrective action plan or as directed by the implementing agency, owners and operators must implement the plan.

4) Owners and operators may begin cleanup of the environment before the corrective action plan is approved provided they:

- a) Notify the implementing agency of their intention to begin cleanup;
- b) Comply with any conditions imposed by the implementing agency; and
- c) Incorporate these cleanup measures in the corrective action plan submitted for approval.

N ARS TANK MANAGEMENT PROGRAM (Continued)

(g) Public participation (40 CFR 280.67)

1) For each confirmed release that requires a corrective action plan, the implementing agency must provide notice to the public. This notice may include, but is not limited to, public notice in local newspapers, block advertisements, public service announcements, publication in a state register, letters to individual households or personal contacts by field staff.

2) The implementing agency must give public notice that complies with the above paragraph if implementation of an approved corrective action plan does not achieve the established cleanup levels in the plan and termination is under consideration by the implementing agency.

(22) Reporting and Recordkeeping (40 CFR 280.34)

Owners and operators of UST systems must cooperate fully with inspections, monitoring and testing done by the implementing agency, as well as requests for document submission, testing, and monitoring by the owner and operator pursuant to section 9005 of Subtitle I of the Resource Conservation and Recovery Act, as amended.

(a) Reporting

1) Owners and operators must submit the following information to the implementing agency:

N ARS TANK MANAGEMENT PROGRAM (Continued)

a) Notification for all UST systems (40 CFR 280.22) which includes certification of installation for new UST systems (40 CFR

280.20(e));

b) Reports of releases including suspected releases (40 CFR 280.50), spills and overfills (40 CFR 280.53), and confirmed releases (40 CFR 280.61);

c) Corrective actions planned or taken including initial abatement measures (40 CFR 280.62), initial site characterization (40 CFR 280.63), free product removal (40 CFR 280.64), investigation of soil and ground water cleanup (40 CFR 280.65), and corrective action plan (40 CFR 280.66); and

d) A notification before permanent closure or change-in-service (40 CFR 280.71).

(b) Recordkeeping

1) Owners and operators must maintain the following information:

a) A corrosion experts analysis of site corrosion potential if corrosion protection equipment is not used (40 CFR

280.20(a)(4); 40 CFR

280.20(b)(3);

b) Documentation of operation of corrosion protection equipment (40 CFR 280.31);

N ARS TANK MANAGEMENT PROGRAM (Continued)

c) Documentation of UST system repairs (40 CFR

280.33(f));

d) Recent compliance with release detection requirements (40 CFR

280.45); and

e) Results of the site investigation conducted at permanent closure (40 CFR 280.74).

(c) Availability and maintenance of records

1) Owners and operators must keep the records required either:

a) At the UST site and immediately available for inspection by the implementing agency; or

b) At a readily available alternative site and be provided for inspection to the implementing agency upon request.

c) In the case of permanent closure records required under 40 CFR 280.74, owners and operators are also provided with the additional alternative of mailing closure records to the implementing agency if they cannot be kept at the site or an alternative site as indicated above.

(23) Applicable Federal Regulations for Above-Ground Storage Tanks (ASTs) (40 CFR Part 112 - Oil Pollution Prevention)

(a) Applicability (40 CFR 112.1)

N ARS TANK MANAGEMENT PROGRAM (Continued)

1) These regulations: establish procedures, methods, and requirements for equipment to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines.

2) Those facilities which, although otherwise are subject to the jurisdiction of the Environmental Protection Agency, are exempt from these regulations if they meet both of the following requirements:

a) The underground buried storage capacity of the facility is 42,000 gallons or less of oil; and

b) The storage capacity, which is not buried, of the facility is 1,320 gallons or less of oil, provided no single container has a capacity in excess of 660 gallons.

(b) Requirements for preparation and implementation of Spill Prevention Control and Countermeasure Plans (40 CFR 112.3)

1) Owners or operators of onshore and offshore facilities, which due to their location could reasonably be expected to discharge oil in harmful quantities into or upon the navigable waters of the United States or adjoining shorelines, shall prepare a Spill Prevention, Control, and Countermeasure Plan (hereinafter "SPCC" Plan). This plan must be in writing and in accordance to 40 CFR 112.7.

N ARS TANK MANAGEMENT PROGRAM (Continued)

a) The SPCC Plan shall be prepared within six months of when the facility begins operations and shall be fully implemented as soon as possible, but not later than one year after such facility begins operations.

b) No SPCC Plan shall be effective to satisfy the requirements of this regulation unless it has been reviewed by a Registered Professional Engineer and certified to by such Professional Engineer.

c) A copy of the SPCC Plan must be maintained at the facility if it is normally attended at least 8 hours per day, otherwise it may be kept at the Location office.

(c) Amendments to SPCC Plans

1) The SPCC Plan may be required to be amended for the following reasons:

a) The EPA Regional Administrator may require the SPCC Plan amended as a result of a harmful discharge of oil into navigable waters of the United States in accordance with 40 CFR

112.4.

b) The owner or operator is required to amend the SPCC whenever there is a change in facility design, construction, operation or maintenance which materially affects the facilities potential for the discharge of oil into

N ARS TANK MANAGEMENT PROGRAM (Continued)

or upon the navigable waters of the United States or adjoining shorelines.

(d) SPCC Plan Elements (40 CFR 112.7)

While each SPCC plan is unique, there are certain elements which are required in every SPCC plan. Below is a list of required elements:

1) Name of facility;

2) Type of facility;

3) Date of initial operation;

4) Location of the facility including a topographic map;

5) Name and address of the owner (ARS);

6) Designated person responsible for oil spill prevention. This person shall be familiar with the SPCC regulation and with the facility SPCC plan;

7) A description of the facility including a site map. The description shall include the types of tanks and vehicles used at the facility. The site map shall show the location of the tanks, emergency spill equipment, berms, dikes, drainage, gates, fences, and surface water;

8) Potential spill volumes and rates of release;

9) Spill prevention and control measures which may include:

a) Construction of the tank;

b) Gauges;

c) Venting capacity;

N ARS TANK MANAGEMENT PROGRAM (Continued)

d) Dikes, berms, curbing, retaining walls;

e) Culverting and gutters;

f) Weirs, booms, or other barriers;

g) Spill diversion ponds;

h) Retention ponds;

i) Sorbent materials;

j) Failsafe engineering mechanisms such as shutoff valves, flow restrictors, or high level alarms;

k) Periodic integrity testing and inspection of the tank, supports, foundations, and piping;

l) Oil transfer operation procedures; and

m) A description of what actions would be taken in the event of a spill;

10) Post spill history - Provide a detailed history of significant spill events that occurred in the twelve-month period (from January 10, 1973 to January 10, 1974) prior to the effective date of the regulation. For each spill that occurred during the period, include the following information:

a) Type and amount of oil spilled;

b) Location, date and time of spill(s);

c) Watercourse affected;

d) Description of physical damage;

N ARS TANK MANAGEMENT PROGRAM (Continued)

e) Cost of damage;

f) Cost of cleanup;

g) Cause of spill; and

h) Action taken to prevent recurrence.

11) Security - This section shall address the following:

a) Fencing around the facility;

b) The locking of gates when the facility is unattended;

- c) The locking of master flow and drain valves when not in use;
- d) The locking of the oil pump starter control in the "off" position;
- e) The secure capping of loading/unloading pipelines when not in use; and
- f) Security lighting.

12) Training of personnel in proper spill countermeasures and notification procedures. Instructions shall also be posted conspicuously.

13) Management approval - The Plan shall include a statement about the facilities commitment to the Plan, signed by a person with the authority to commit management to implementation of the SPCC Plan.

14) Certification - Provide a statement of SPCC Plan certification under the seal and signature of a registered professional engineer. The

N ARS TANK MANAGEMENT PROGRAM (Continued)

State of registration and the registration number of the certifying engineer must also be provided. The certifying engineer is not required to be registered in the State in which the facility is located.

15) Emergency telephone numbers

a) Notification procedures

(i) Location Coordinator

(ii) National Response Center

(iii) State Response Mechanism

b) Clean-up contractors

c) Supplies and Equipment

16) Review dates - The Plan must be reviewed every 3 years and, if necessary, amended within 6 months of the review. The signature of the reviewing official shall be on the SPCC Plan.

(e) Civil penalties for violation of oil pollution prevention regulations (40 CFR 112.6).

Owners or operators of facilities subject to 40 CFR 112.3(a), (b) or (c) who violate the requirements of this Part 112 by failing or refusing to comply with any of the provisions of 40 CFR 112.3, 40 CFR 112.4, or 40 CFR 112.5 shall be liable for a civil penalty of not more than \$5,000 for each day such violation continues. Civil penalties shall be imposed in accordance with procedures set out in 40 CFR 114.

N ARS TANK MANAGEMENT PROGRAM (Continued)

9 Storage Tank Inventory

a It shall be completed when:

(1) The initial inventory performed in June/July 1992;

(2) When an existing tank not known to exist is discovered; and

(3) When a new tank is installed.

b A copy of the inventory form will be kept at the Location, Area, and Headquarters.

c The inventory will be conducted by the Area Safety and Health Managers through the Location Coordinators.

10 Under Ground Storage Tanks (USTS) Vs. Above Ground Storage Tanks (ASTS)

Over the years, regulated substances have been stored in underground tanks to reduce risk of fire, save space, and provide a more attractive site. Today, however, many underground storage tanks (USTs) are being replaced by above-ground storage tanks (ASTs). The reason is to avoid the complex UST regulations. The problem with that rationale is that the rules governing ASTs are rapidly evolving. It is very likely that UST owners who have rushed to replace their tanks with ASTs will have to retrofit their new tanks to meet many of the same requirements they sought to avoid.

The ASTs are presently regulated by the Federal Spill Prevention Control and Countermeasure (SPCC) rules adopted in the 1970s under the Clean Water Act. Additionally, many localities regulate ASTs using the National Fire Protection Association Codes 30 and 30A as guidelines.

The SPCC rules are implemented by the EPA Office of Emergency Response (OERR). That office is in the process of revising the rules using a two phase approach. Phase I proposes language which strengthens much of the language of the SPCC rules from "should" to "shall". It also requires that the entire containment area be impervious to oil for a 72 hour period. Additionally, it would include a one time notification requirement much like the UST regulations. These proposed changes were published

N ARS TANK MANAGEMENT PROGRAM (Continued)

for public review in the October 22, 1991 Federal Register.

The second phase of the SPCC revisions would incorporate mandates of the Oil Pollution Act of 1990 (OPA 1990). It would require facility-specific contingency plans which may require EPA review. This act also addresses specific technical requirements for construction, testing, leak detection, security, and

brittle fracture.

OPA 1990 also commissioned a study of the feasibility of using external tank bottom and dike/floor liners to prevent ground water contamination. This study may initiate Phase III revisions to the SPCC rules to implement any liner requirements.

In addition to proposed changes to the SPCC regulations, there have been a number of Congressional bills introduced which propose to take ASTs out of OERR authority and include them under RCRA with USTs. Such a move would impose on ASTs many of the requirements currently applicable to USTs.

Those proposing to install ASTs shall proceed with caution, and strongly consider the above proposed rule changes. If the decision is made to go ahead with AST installation, careful planning of the site and design will be necessary in order to lessen the impact of retrofitting the tanks if and when the rule change occurs.

11 Fiberglass Tanks

Fiberglass tanks are considered for underground storage by many as a method of meeting corrosion protection requirements. There are, however, two major drawbacks of fiberglass tanks. Both are related to the weaker construction of the tank as compared to steel tanks.

a In areas with a very high water table, a near empty UST is extremely buoyant. To correct this problem, heavy straps are used to anchor the tank in position. The problem is even greater with fiberglass tanks because of their light weight. There have been many instances where an empty or near empty fiberglass UST pushed up through the ground and the anchor straps actually sliced the tank into two or three pieces in the process. The result of course is

N ARS TANK MANAGEMENT PROGRAM (Continued)

an immediate need to replace the tank. In addition, the spilled contents may result in an expensive environmental cleanup.

b In areas of seismic activity the likelihood of a release caused by earthquake damage is far greater from a fiberglass tank than from the stronger steel tank.

12 Safety Considerations

a Depending on the contents of the tank, removal and/or corrective actions may require compliance with:

(1) 29 CFR 1910.106 (Flammable and combustible liquids); and

(2) 29 CFR 1910.120 (Hazardous waste operations and emergency response).

b Hazardous waste operation and emergency response personnel must meet:

(1) Training requirements under 29 CFR 1910.120(e); and

(2) Medical surveillance under 29 CFR 1910.120(f).

c Site excavations created during initial site preparation or during hazardous waste operations shall be shored or sloped as appropriate to prevent accidental collapse in accordance with subpart P of 29 CFR 1926.

13 Disclaimer

This Section provides guidelines for managing storage tanks in compliance with Federal regulations. It is important to realize that many State and local governments have more stringent regulations. In all cases, the regulations of these governing bodies must be investigated, and storage tank management activities at a given Location must comply with the most stringent regulation.

